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**SECTION I. (AMENDMENTS TO THE CLAIMS)**

Please amend the claims as set forth below:

1. (Cancelled)
2. (Cancelled)
3. (Currently amended) ~~The system of claim 1 wherein:~~ A system for analyzing a plurality of samples in parallel, the system comprising:  
a plurality of fluid phase separation process regions;  
a plurality of ionization sources; and  
~~the a~~ mass spectrometer includes having a plurality of sample inlets and a plurality of  
transducers; wherein:  
each separation process region is in fluid communication with the mass spectrometer  
through a different ionization source of the plurality of ionization sources and through a different  
inlet of the plurality of inlets; and  
each transducer of the plurality of transducers is associated with a different ionization source of the plurality of ionization sources and is associated with a different inlet of the plurality of inlets.
4. (Currently amended) ~~The system of claim 1 wherein:~~ A system for analyzing a plurality of samples in parallel, the system comprising:  
a plurality of fluid phase separation process regions;  
a plurality of ionization sources; and  
~~the a~~ mass spectrometer includes having a plurality of sample inlets, a plurality of mass  
analyzers, and a plurality of transducers; wherein  
each separation process region is in fluid communication with the mass spectrometer  
through a different ionization source of the plurality of ionization sources and through a different  
inlet of the plurality of inlets;  
each ionization source of the plurality of ionization sources supplies ions to a different mass analyzer of the plurality of mass analyzers through a different inlet of the plurality of inlets;  
and

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each transducer of the plurality of transducers is associated with a different ionization source of the plurality of ionization sources and is associated with a different inlet of the plurality of inlets.

5. **(Previously presented)** The system of claim 4, further comprising a plurality of focusing elements disposed between the plurality of ionization sources and the plurality of mass analyzers.

6. **(Previously presented)** The system of claim 5 wherein:

the mass spectrometer comprises a chassis and plurality of discrete modules retained by the chassis; and

each module of the plurality of modules comprises a mass analyzer of the plurality of mass analyzers and at least one of a transducer of the plurality of transducers and a focusing element of the plurality of focusing elements.

7. **(Previously presented)** The system of claim 6 wherein each module of the plurality of modules further includes a selectively dischargeable ion trap disposed between a different inlet of the plurality of inlets and a different mass analyzer of the plurality of mass analyzers.

8. **(Currently amended)** The system of claim 4 wherein each module of the plurality of modules includes a housing defining at least one vacuum passage.

9. **(Previously presented)** The system of claim 6 wherein each module of the plurality of modules is removably affixed to the chassis.

10. **(Previously presented)** The system of claim 6 wherein:

the chassis includes a plurality of electrical conductors; and

each module of the plurality of modules is in electrical communication with at least two conductors of the plurality of conductors.

11. **(Previously presented)** The system of claim 10 wherein the chassis includes a plurality of electrical connectors, and each module of the plurality of modules is adapted to mate with a connector of the plurality of connectors.

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12. **(Previously presented)** The system of claim 10 wherein the chassis comprises a circuit board.
13. **(Previously presented)** The system of claim 10 wherein the chassis comprises an electrically insulating material.
14. **(Previously presented)** The system of claim 6 wherein the plurality of modules are disposed in a two-dimensional array.
15. **(Currently amended)** The system of claim 13 wherein each inlet of the plurality of inlets is disposed at least about one centimeter apart from every other inlet of the plurality of inlets.
16. **(Previously presented)** The system of claim 6, further comprising at least one vacuum pump, wherein each module of the plurality of modules is in fluid communication with the at least one vacuum pump.
17. **(Previously presented)** The system of claim 6, further comprising a vacuum enclosure and a vacuum pump adapted to evacuate the vacuum enclosure, wherein the plurality of modules are disposed within the vacuum enclosure.
18. **(Previously presented)** The system of claim 17 wherein each module of the plurality of modules comprises at least one internal partition.
19. **(Previously presented)** The system of claim 17 further comprising at least one partition disposed within the vacuum enclosure between at least two modules of the plurality of modules.
20. **(Currently amended)** The system of claim 13 wherein each separation process region of the plurality of separation process regions is microfluidic.
21. **(Previously presented)** The system of claim 20 wherein the plurality of separation process regions are disposed within a unitary microfluidic device.

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22. **(Currently amended)** The system of claim ~~1~~ 3 wherein the plurality of separation process regions includes a plurality of liquid chromatography columns.
23. **(Currently amended)** The system of claim ~~2~~ 4 wherein each mass analyzer of the plurality of mass analyzers comprises any of a time-of-flight mass analyzer, a quadrupole mass analyzer, and an ion trap mass analyzer.
24. **(Currently amended)** The system of claim ~~2~~ 4, further comprising a plurality of flow-through detection regions disposed between the plurality of separation process regions and the plurality of mass analyzers.
25. **(Currently amended)** The system of claim ~~2~~ 4 wherein the number of separation process regions of the plurality of separation process regions equals the number of mass analyzers of the plurality of mass analyzers.
26. **(Previously presented)** The system of claim 6, further comprising a common controller, wherein each module of the plurality of modules are in electrical communication with the common controller.
27. **(Previously presented)** The system of claim 6, further comprising a common voltage source, wherein each module of the plurality of modules is in electrical communication with the common voltage source.
28. **(Previously presented)** A modular mass spectrometer device for analyzing a plurality of samples in parallel, the device comprising:
- a vacuum enclosure defining a plurality of sample inlets;
  - a chassis disposed at least partially within the vacuum enclosure;
  - at least one vacuum pump for evacuating the vacuum enclosure; and
  - a plurality of modules adapted to mate with the chassis within the vacuum enclosure, the plurality of modules including a plurality of mass analyzers disposed downstream of the plurality of sample inlets and including any of:
    - a plurality of focusing elements disposed between the plurality of sample inlets and the plurality of mass analyzers; and
    - a plurality of transducers disposed downstream of the plurality of mass analyzers.

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29. **(Previously presented)** The device of claim 28 wherein each module of the plurality of modules comprises a mass analyzer of the plurality of mass analyzers, a focusing element of the plurality of focusing elements, and a transducer of the plurality of transducers.
30. **(Previously presented)** The device of claim 28, further comprising a plurality of selectively dischargeable ion traps disposed between the plurality of sample inlets and the plurality of focusing elements.
31. **(Previously presented)** The device of claim 28 wherein each module comprises a housing defining at least one vacuum passage.
32. **(Previously presented)** The device of claim 28 wherein each module of the plurality of modules comprises at least one internal partition.
33. **(Previously presented)** The device of claim 28 further comprising at least one partition disposed within the vacuum enclosure between at least two modules of the plurality of modules.
34. **(Previously presented)** The device of claim 28 wherein:  
the chassis includes a plurality of electrical conductors; and  
each module of the plurality of modules is in electrical communication with at least two conductors of the plurality of conductors.
35. **(Previously presented)** The device of claim 28 wherein the chassis includes a plurality of electrical connectors, and each module of the plurality of modules is adapted to mate with a connector of the plurality of connectors.
36. **(Previously presented)** The device of claim 28 wherein the chassis comprises an electrically insulating material.
37. **(Previously presented)** The device of claim 28 wherein the chassis comprises a circuit board.

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38. **(Previously presented)** The device of claim 28 wherein the plurality of inlets are disposed in a two-dimensional array.
39. **(Previously presented)** The device of claim 28 wherein each inlet of the plurality of inlets is disposed at least about one centimeter apart from every other inlet of the plurality of inlets.
40. **(Previously presented)** The device of claim 28 wherein the plurality of modules are disposed in a two-dimensional array.
41. **(Previously presented)** The device of claim 28 wherein each mass analyzer of the plurality of mass analyzers comprises any of a time-of-flight mass analyzer, a quadrupole mass analyzer, and an ion trap mass analyzer.
42. **(Previously presented)** The device of claim 28, further comprising a plurality of ionization elements.
43. **(Previously presented)** A high throughput analytical system comprising:  
a plurality of fluid phase separation process regions;  
a plurality of ionization elements in fluid communication with the plurality of separation process regions; and  
the device of claim 28, wherein each inlet of the plurality of inlets receives ions from a different ionization element of the plurality of ionization elements.
44. **(Previously presented)** The system of claim 43, further comprising a plurality of flow-through detection regions disposed between the plurality of separation process regions and the plurality of inlets.
45. **(Previously presented)** The system of claim 43 wherein the number of separation process regions of the plurality of separation process regions equals the number of modules of the plurality of modules.

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46. (New) The system of claim 43 wherein each fluid phase separation process region of the plurality of fluid phase separation process regions is a liquid phase separation process region adapted to perform a liquid phase separation process.

47. (New) The system of claim 3 wherein each fluid phase separation process region of the plurality of fluid phase separation process regions is a liquid phase separation process region adapted to perform a liquid phase separation process.